**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_**

**KEY**

**Nature of Science**

1. **What is a variable ? Any factor trait or condition that is in an experiment.**
2. **What is the dependent variable ? The variable that is measured in an experiment**
3. **What is the independent variable ? The variable that is manipulated in an experiment. The treatment**
4. **What is a control group ? The group that does not receive any treatment in an experiment.**
5. **What are constants ? Factors that remain the same in an experiment.**
6. **List the steps of the scientific Method : Observation; Question; Hypothesis; Experiment; Gather and analyze data; share your results or if need be make changes**
7. **What is an observation? Gather information using your five senses.**
8. **What is the difference between a qualitative and quantitative observation ? Qualitative refers to characteristics or physical descriptions such as a red dress, being tall ect… Quantitative refers to numbers i.e. 3 oranges, 10 people ect..**
9. **What is an inference? A conclusion one draws based on previous knowledge**
10. **What is the difference between a theory and a law? Be able to identify each. A Theory: Well substantiated well tested explanation of an observed phenomenon. Examples include The Cell theory, Theory of Evolution by Natural selection.**

**A Law: description, usually a mathematical description, of a natural phenomenon. Examples include Newton law of Gravity, Mendel’s Law of Independent Assortment**

**Topic 8 Part**

|  |
| --- |
| 1. **What are the 3 components of cell theory?**   **1. All living things are made up of cells**  **2. All new cells come from existing cells**   1. **Cells are the basic units of structures and function of living and in living things** |
| 1. **What is an organelle?**   **Small specialized structures within cells. Each organelle has a specific function and structure that help the cell maintain homeostasis. They are located within the cytoplasm** |
| 1. **Name the organelle that Plants and Animal cells BOTH have.**   **Nucleus : controls all the activities of the cell (largest organelle)**  **Nucleolus \_: makes ribosomes**  **Cytoplasm : gelatin-like material inside the cell membrane**  **Endoplasmic Reticulum (Rough) \_: (has ribosomes) – site of protein production / carries materials through the cell**  **Smooth Endoplasmic Reticulum: (no ribosomes) – makes lipids and helps remove harmful substances**  **Mitochondria : where the energy in food is stored/ produces energy through cellular respiration**  **Golgi : flattened membranes that prepare proteins for specific jobs**  **Ribosomes : create proteins**  **Cell Membrane : protective layer around all cells.  Controls what enters and leaves the cell.** |
| 1. **What organelles do PLANT CELLS have, but ANIMAL cells Do Not???**   **Cell wall the cells of plants**  **Chlorplast \_\_\_: green organelles that use light energy and make food by photosynthesis**  **Vacuole stores food, water, and waste** |
| 1. **What organelles do ANIMAL CELLS have, PLANT cells do not???**   **Lysosomes : breaks down food materials, wastes, and old cells** |
| 1. **What is passive transport?**   **Movement of water in an out of a cell through a selectively permeable membrane. Transport does not require energy. Two types are osmosis and diffusion.** |
| 1. **Describe the 2 types of passive transport.**   **Diffusion – The movement of molecules from an area of higher concentration to an area of lower concentration.**  **Osmosis – The diffusion of water through a selectively permeable membrane from an area of higher concentration to an area of lower concentration.** |
| 1. **What is active transport?**   **Movement of molecules or substances from an area of lower concentration to an area of higher concentration. Requires energy to move**  **=** |
| 1. **What are the 2 types of active transport?**   **Endocytosis – Process by which substances are brought into the cell. It is how cells get the nutrients they need to grow and develop**  **Exocytosis – Process by which substances are excreted (pushed out) of the cell.** |

1. **Give the function of each body system**
   1. **Muscular –System used to help your body move, stand up straight and breath. Keeps blood and food moving through body.**
   2. **Nervous –Control system of the body. Communication to various parts to ensure movement etc. Controls actions**
   3. **Skeletal- Provides structure and support to the body**
   4. **Respiratory –Transport system brings oxygen and moves out carbon dioxide.**
   5. **Circulatory – Carries oxygen rich blood to all parts of the body , made of heart and blood vessels.**
2. **What is the importance of the skeletal system? Provides structure and support, attachment of muscles or place for muscles and ligaments to attach**
3. **What is the definition of homeostasis? Balance or equilibrium**
4. **What function of the skeletal system keeps the lungs from getting damaged? The rib cage protects the lungs from damage.**
5. **What two systems work together to allow our bodies to move? Muscular and skeletal**
6. **What 3 things can the nervous system perform? DO NOT ANSWER THIS QUESTION**
7. **How does the nervous system take on information? Though nerves in every part of the body. Send electrical signals to your brain.**
8. **List your 5 senses: Sight, smell, touch, hearing, taste**
9. **What are 3 types of muscle cells and where can they be found? DO NOT ANSWER THIS QUESTION**
10. **What is the first line of defense of the human body?**
11. **Where does digesting food begin and where does it end ? The mouth ends in colon**
12. **What role does the liver play in the human body? (digestive and excretory)- digests fat; detoxifies chemicals, secreates bile for the intestines**
13. **List the organs that make up the respiratory system- Lungs, nose, bronchi, larynx, trachea**